

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 Claims 1-23 (cancelled):
2

1 Claim 24 (currently amended): A method for epidurally treating at least
2 one intervertebral disc using a disc refurbisher, said method comprising the steps of:

- 3 (a) gaining access to a vertebral column;
4 (b) inserting a thin leading edge formed at an anterior portion of a
5 rounded edge intersection between an energy application region
6 and a tissue protecting region of an energy application head of said
7 disc refurbisher, said tissue protecting region having a domed
8 center;
9 (c) epidurally approaching [[the]] a posterior aspect of said at least one
10 intervertebral disc;
11 (d) lifting vulnerable tissues using said domed center of said tissue
12 protecting region, said tissue protecting region being sloped away
13 from said energy application region and from said thin leading edge
14 to a thick region; and
15 (e) applying energy to [[a]] said posterior aspect of said at least one
16 intervertebral disc using said energy application region.
17

1 Claim 25 (currently amended): A method for thermally treating [[an]] at
2 least one intervertebral disc while thermally protecting vulnerable tissues, said method
3 comprising the steps of:

4 (a) providing a disc refurbisher, said disc refurbisher comprising:

5 (i) an energy application head having an energy application
6 region and a tissue protecting region;

7 (ii) a thin leading edge formed at an anterior portion of a
8 rounded edge intersection between said energy application
9 region and said tissue protecting region;

10 (iii) said tissue protecting region being sloped away from said
11 energy application region and from said thin leading edge to
12 a thick domed center region for lifting vulnerable tissues
13 away from a site of energy application to at least one
14 intervertebral disc; and

15 (iv) a control member operationally connected to said energy
16 application head, said control member suitable for controlling
17 said energy application head during treatment of said at
18 least one intervertebral disc;

19 (b) gaining access to a vertebral column;

20 (c) epidurally approaching [[the]] a posterior aspect of said at least one
21 intervertebral disc using said control member to position said
22 energy application head;

23 (d) evaluating an extent of disc injury and calculating an amount of
24 energy needed to thermally refurbish said at least one intervertebral
25 disc;

26 (e) applying energy using said disc refurbisher to [[a]] said posterior
27 aspect of said at least one intervertebral disc while maintaining a
28 safe temperature in said vulnerable tissues near said at least one
29 intervertebral disc;

- 30 (f) monitoring an amount of energy delivered and a temperature in
31 said vulnerable tissues near said at least one intervertebral disc;
32 (g) observing and evaluating an amount of shrinkage and
33 strengthening of said at least one intervertebral disc to determine
34 an intensity and duration of further energy delivery; and
35 (h) verifying that said shrinkage and strengthening of said at least one
36 intervertebral disc is mechanically successful.
37

1 Claim 26 (new): The method of claim 24, further comprising at least one
2 step selected from the group of steps consisting of:

- 3 (a) evaluating an extent of disc injury;
4 (b) calculating an amount of energy needed to thermally refurbish said
5 at least one intervertebral disc;
6 (c) monitoring an amount of energy delivered and a temperature in
7 vulnerable tissues around said at least one intervertebral disc;
8 (d) observing and evaluating an amount of shrinkage and
9 strengthening of said at least one intervertebral disc to determine
10 an intensity and duration of further energy delivery; and
11 (e) verifying that said shrinkage and strengthening of said at least one
12 intervertebral disc is mechanically successful.
13

1 Claim 27 (new): The method of claim 24, further comprising the step of
2 maintaining a safe temperature in vulnerable tissues near said at least one
3 intervertebral disc.
4

1 Claim 28 (new): The method of claim 24, said step of applying energy to
2 said posterior aspect of said at least one intervertebral disc using said energy
3 application region further comprising the step of gliding over surfaces of an annulus
4 fibrosis with said energy application region, said energy application region having a
5 smooth surface suitable for gliding over surfaces without snagging other tissues.
6

1 Claim 29 (new): The method of claim 24, said step of applying energy to
2 said posterior aspect of said at least one intervertebral disc using said energy
3 application region further comprising the step of inserting said energy application head
4 between tissue layers and separating tissues as said energy application head is
5 advanced to an injury site or moved from side to side.
6

1 Claim 30 (new): The method of claim 25, further comprising the step of
2 applying further energy to other posterior areas of said at least one intervertebral disc to
3 reduce pain.
4

1 Claim 31 (new): The method of claim 25, said step of applying energy to
2 said posterior aspect of said at least one intervertebral disc further comprising a step
3 selected from the group consisting of:

- 4 (a) applying electric current;
- 5 (b) applying radio frequency waves;
- 6 (c) applying microwaves;
- 7 (d) applying infrared waves;
- 8 (e) applying visible light waves;
- 9 (f) applying ultraviolet waves;
- 10 (g) applying ultrasonic sound waves; and
- 11 (h) applying conductive thermal energy.

1 Claim 32 (new): The method of claim 25, said step of monitoring an
2 amount of energy delivered further comprising a step selected from the group consisting
3 of:

- 4 (a) monitoring using a thermometer;
- 5 (b) monitoring using a thermistor;
- 6 (c) monitoring using a thyristor;
- 7 (d) monitoring using phosphor-coated optic fibers;
- 8 (e) monitoring using temperature-sensitive crystals;
- 9 (f) monitoring a pressure change in bodily tissue; and
- 10 (g) monitoring a volume change in bodily tissue.

11
1 Claim 33 (new): The method of claim 25, said step of observing and
2 evaluating an amount of shrinkage and strengthening of said at least one intervertebral
3 disc further comprising a step selected from the group consisting of:

- 4 (a) observing with unaided vision;
- 5 (b) observing with at least one camera;
- 6 (c) observing with at least one lens;
- 7 (d) observing with at least one mirror;
- 8 (e) observing with at least one fiber-optic device;
- 9 (f) observing with a mechanical probe; and
- 10 (g) observing with a pressure sensor.

11
1 Claim 34 (new): The method of claim 25, said step of applying energy
2 further comprising the step of gliding over surfaces of an annulus fibrosis with said
3 energy application region, said energy application region having a smooth surface
4 suitable for gliding over surfaces without snagging other tissues.

5
1 Claim 35 (new): The method of claim 25, said step of applying energy
2 further comprising the step of inserting said energy application head between tissue

3 layers and separating tissues as said energy application head is advanced to an injury
4 site or moved from side to side.

1 Claim 36 (new): A method for thermally treating at least one intervertebral
2 disc while thermally protecting vulnerable tissues, said method comprising the steps of:

- 3 (a) providing a disc refurbisher, said disc refurbisher comprising:
- 4 (i) an energy application head having an energy application
5 region and a tissue protecting region;
- 6 (ii) a thin leading edge formed at an anterior portion of a
7 rounded edge intersection between said energy application
8 region and said tissue protecting region;
- 9 (iii) said tissue protecting region being sloped away from said
10 energy application region and from said thin leading edge to
11 a thick domed center region for lifting vulnerable tissues
12 away from a site of energy application to said at least one
13 intervertebral disc; and
- 14 (iv) a control member operationally connected to said energy
15 application head, said control member suitable for controlling
16 said energy application head during treatment of said at
17 least one intervertebral disc;
- 18 (b) gaining access to a vertebral column;
- 19 (c) inserting said energy application head between tissue layers;
- 20 (d) separating tissues as said energy application head is advanced to
21 an injury site or moved from side to side, lifting vulnerable tissues
22 using said domed center of said tissue protecting region;
- 23 (e) epidurally approaching a posterior aspect of said at least one
24 intervertebral disc using said control member to position said
25 energy application head; and

26 (f) applying energy using said disc refurbisher to said posterior aspect
27 of said at least one intervertebral disc while maintaining a safe
28 temperature in said vulnerable tissues near said at least one
29 intervertebral disc.

30
1 Claim 37 (new): The method of claim 36, further comprising the step of
2 evaluating an extent of disc injury and calculating an amount of energy needed to
3 thermally refurbish said at least one intervertebral disc.

4
1 Claim 38 (new): The method of claim 36, further comprising the step of
2 monitoring an amount of energy delivered and a temperature in said vulnerable tissues
3 near said at least one intervertebral disc.

4
1 Claim 39 (new): The method of claim 36, further comprising the step of
2 observing and evaluating an amount of shrinkage and strengthening of said at least one
3 intervertebral disc to determine an intensity and duration of further energy delivery.

4
1 Claim 40 (new): The method of claim 36, further comprising the step of
2 verifying that said shrinkage and strengthening of said at least one intervertebral disc is
3 mechanically successful

4
1 Claim 41 (new): The method of claim 36, said step of applying energy
2 further comprising the step of gliding over surfaces of an annulus fibrosis with said
3 energy application region, said energy application region having a smooth surface
4 suitable for gliding over surfaces without snagging other tissues.